

Codes and Standards Enhancement (CASE) Initiative For PY2008: Title 20 Standards Development

Comments in Response to the American Lighting Association: Proposal
Information Template – Portable Lighting Fixtures – ALA
[Dated 4/7/08]

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Comments in Response to the American Lighting Association: Proposal Information
Template – Portable Lighting Fixtures – ALA

Pacific Gas and Electric Company (PG&E) has reviewed the American Lighting Association (ALA) *Proposal Information Template – Portable Lighting Fixtures – ALA*, dated 4/7/08, which provides a counter proposal to the April 3, 2008 PG&E, *Analysis of Standards Options for Portable Lighting Fixtures* proposal. We provide the following comments and questions for consideration by the California Energy Commission (Commission) and the ALA.

PG&E is pleased to see American Lighting Association (ALA) actively promoting an integrated strategy for reducing the energy use of portable lighting fixtures. We find several aspects of their proposal to be thought provoking. Active engagement by the 138 California ALA membership in the promotion of more efficient lighting fixtures could have significant impacts on the efficiency of portable lighting fixtures sold in the future and those already purchased by consumers. As indicated in their proposal, the ALA has participated in past and current efficiency efforts including Energy Star and Lighting for Tomorrow. PG&E is in the process of considering voluntary program for portable fixtures and is interested in further pursuing discussions about voluntary programs with the ALA, including concepts described in Proposal II, III, and IV, though PG&E is considering an earlier start date.

Scope of PG&E Comments

For the purposes of this Title 20 proceeding, the ALA voluntary program proposals (Proposals II, III, and IV) are outside the scope of the discussion before the CEC in docket 07-AAER-3) and so we do not address them here. In the remainder of our comments we focus on the Title 20 related aspects of the ALA proposal--Proposal I.

Definition Issues

ALA defines portable fixtures as follows:

This report specifically covers functional and decorative portable lighting fixtures, equipped with standard 120 volt cord and plug assemblies and designed for residential use (e.g. floor lamps, table lamps, task lamps and other portable functional/decorative lighting fixtures).

While not stated in their proposal's "Purpose" section where this product definition is provided, they note in a later section that Torchieres are a federally covered product. We therefore presume they agree that Torchieres would not be subject to the standards proposed.

They appear to limit the scope of the standard proposal to fixtures "designed for residential use", which is a more narrow definition than assumed in the PG&E proposal. For example, "hospitality" markets are significant users of portable fixtures. We are not clear whether or why they may be opposed to covering portable fixtures designed with

other market segments in mind, but the Commission should consider the lost opportunities inherent in limiting the standard to residential-purpose fixtures.

Observations about ALA Proposed Standards

The ALA Proposal I relating to Title 20 regulations allows for three compliance pathways. PG&E agrees with ALA that the majority of fixtures currently selling in the market fall within the medium screw base category. Furthermore, we assume the ALA would agree with PG&E that the Option A pathway will be the method of compliance for the majority of products if the ALA proposal were adopted as a regulation. Therefore, the Commission should pay particular attention to Option A as it evaluates the proposal.

Option A

Option A addresses fixtures sold that are equipped with medium screw base, adjustable, dimmer-controlled sockets rated at 150 watts maximum and marked for use with either incandescent or dimmable, integrally-ballasted CFL lamps.

Maximum wattage levels

In specifying a 150 watt maximum, we presume that the ALA means that all sockets together cannot be rated for more than 150 watts, though a literal interpretation of the language could be that no single socket can be rated for more than 150 watts. Our concern is that even if we interpret their proposal to limit the total rated wattage for all sockets together in a fixture to 150 watts, their proposal based on this limitation alone would still affect the energy use of a limited number of fixtures—less than 25% of portable fixtures. Our base case assumes an average table lamp with fixture wattage of 67W and an average floor lamp with fixture wattage of 90W (RLW 2005). HMG 1999 breaks out lighting by percentage of CA residential lighting energy use as follows:

- Small incandescent (1-50W): 15% (avg. lamp 32W; avg sockets per fixture 2.1);
- Medium incand. (51-100): 59% (avg. lamp 73W; avg sockets per fixture 1.3);
- Large incand. (101-150): 5.5% (avg. lamp 147W; avg sockets per fixture 1.3);
and
- Very large incand. (151+): 3% (avg. lamp 217W; avg sockets per fixture 1.3)

If the 150 watt limitation were on a per socket basis, this standard would have virtually no effect what so ever, since the vast majority of portable lighting fixtures (except torchieres, which are a federally covered product and not subject to CEC regulation) currently are populated with lamps of lower rated wattage. Thus, regardless of the interpretation, the ALA proposed levels would have little to no effect on total portable fixture energy use in California on the basis of watt levels limitations alone.

Controls

The additional stipulation under option A is that such fixtures would be required to have adjustable, dimmer controlled sockets (again we assume that ALA means that all sockets

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in a multi-socket fixture are to be dimmer controlled). As we understand the ALA stipulation for dimming controls, we view this proposal as a conservation strategy rather than efficiency effort and in fact it seems anti-efficiency. PG&E promotes reduced energy use through improvements in energy efficiency—same light output for less energy. Dimming incandescent lamps not only reduces the light output, but tends to shift the light output toward warmer color temperatures. Furthermore, dimming reduces the efficacy of the lamp output. Figure 6-19 of the Light Sources section of the IESNA Handbook book shows that efficacy (lumens per watt) drops disproportionately when an incandescent lamp is dimmed through RMS voltage reductions. When power (watts) is reduced by the dimmer to 50%, the efficacy drops to approximately 30% of its initial value.

Were there substantial evidence that a large proportion of consumers would regularly use dimmers set to substantially reduced lighting levels when using the fixtures, this proposal might reasonably suggest some level of savings (ignoring for the moment the inherent efficiency loss of dimming). We would not expect to find this to be the case in practice. If evidence is produced that dimmers are used consistently, then efficiency and consumer utility would be better served by selecting a smaller lower output lamps in the first place. We invite the ALA to document evidence that shows a majority of consumers would use substantive dimming levels a majority of the time.

Because there we believe consumers are not going to elect to dim their fixtures when they seem perfectly contented to use them at full output now, we would not expect this ALA Proposal I to result in material savings benefits. Cost increases to consumers, however, seem certain. **Furthermore, because a significant proportion of CFLs currently in the market cannot be operated on dimmer circuits, this proposed standard would have the perverse effect of influencing consumers not to use CFLs in medium screw base portable fixtures where they might otherwise do so.** Thus, based on the data we have at this time, the option A would offer negligible saving or in fact measurable increases on energy use in California.

Option B

We agree that GU24 line voltage sockets offer opportunities for energy savings when restricted to use with energy-efficient light sources such as CFLs and LEDs.

Option C

We suggest that “appropriate” fluorescent ballasts for fixtures with dedicated pin sockets are electronic ballasts meeting the ballast performance requirements in the Energy Star Residential Light Fixture specification version 4.1. Especially with such a lax Option A, we would expect product market share in Option B and C categories to remain small following the deployment of this standard, so these later two options would have only marginal impacts on energy savings.

Exceptions and Coverage Gaps

We are concerned about the ALA's broad exceptions. They assert that *"this proposal is to apply to all portable lighting fixture products which would otherwise be sold with a standard (E26) single-level (on/off) or non-controllable socket."* We find this construction potentially confusing, but it would seem to mean that all products that are currently not medium screw based and non-controllable are exempt from coverage.

The first concern we have is that portable fixtures designed with other screw base sockets normally associated with incandescent lamps, including candelabra (E12) and intermediate (E17), would not appear to be regulated under the ALA proposal. While the definition presented by ALA in the "Purpose" section is broad, the coverage implied in the exception language of the specific proposal is narrow. Though limited in market share at this time, we believe fixtures with such incandescent sockets present a substantive loophole opportunity for manufacturers and retailers.

While we understand that the current market share for the other halogen and low voltage lamp socket fixtures is small, we are concerned that these products also potentially create loopholes for subsequent exploitation.

We believe that the proposal may accidentally restrict the use of portable fixtures with "hard-wired" LED lamps, which otherwise could be expected to well exceed desired efficiency performance. Allowance for such products must be addressed.

PG&E is also concerned about the possibility of adaptors being sold that convert GU-24 sockets to medium screw base sockets. This concern should be evaluated.

Savings Analysis Issues

The ALA energy savings estimate appears to be based on the assumption that average fixture demand can be reduced over time by 30% to about 45 watts. It is clear from their narrative that these average fixture savings assume implementation of voluntary Proposals II, III, and/or IV in the analysis, which are outside the scope of this Title 20 docket. As is clear from our comments above, we believe that their Proposal I evaluated on its own merits risks increasing average energy use because it limits the use of CFLs (until such time as all CFLs are able to dim acceptably). Ignoring that CFL limitation risk, between the uncertainty over customer behavior with respect to dimmers and the very lenient maximum wattage levels, we anticipate little in the way of savings from Proposal 1. Thus, the vast majority of the 700+ GWh savings posited by ALA would result from either very aggressive assumptions about growth in market share of products complying under option B and C of Proposal I—which we believe both ALA and PG&E would view as unlikely in the near term, or more likely customer participation (aggressive assumptions) in Proposals II, III, and IV, which again are outside the scope of this Title 20 proceeding.

Conclusion

We appreciate the ALA taking a proactive role in the discussions regarding portable lighting fixtures and look forward to discussing voluntary programs with them. On the other hand, we do not believe that as presently structured their Proposal I will help the Commission achieve the legislatively required savings, and may result in a decrease in efficiency coupled with increased energy use. We look forward to continued discussions with the Commission, ALA and other stakeholders on the portable lighting fixture opportunity.